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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CAO, DIEM K

ART UNIT	PAPER NUMBER
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2126

DATE MAILED: 08/13/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/588,006

Applicant(s)

CAYTON ET AL.

Examiner

Charles E Anya

Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 5, 8 – 11, 13, 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,591,310 B1 to Johnson in view of U.S. Pat. No. 6,545,981 B1 to Garcia et al.

As to claim 1, Johnson teaches a Host Module Driver (“...host-based driver...” Col. 6 Ln. 29 – 56, OSM 12 Col. 7 Ln. 31 – 39, Col. 15 Ln. 45 – 67, Host Driver 70, 80 Col. 13 Ln. 35 – 67), Host (“...host-based operating system...” Col. 6 Ln. 29 – 56, “...host...Operating system...” Col. 15 Ln. 45 – 67), an I/O Unit Module Driver (HDM 14 Col. 7 Ln. 31 – 39, DDM Col. 15 Ln. 45 – 67, Col. 16 Ln. 1 – 10), a Remote I/O Unit (“...peripherals...” Col. 59 – 65), a Switched Fabric (“...Fibre Channel...” Col. 6 Ln. 29 – 56, Col. 13 Ln. 1 – 19) and the host module driver and the I/O unit module driver to include a push-push messaging layer to communicate messages across the switched fabric (“...message passing medium...” Col. 6 Ln. 29 – 56, Col. 12 Ln. 66 – 67, Col. 13 Ln. 1 – 19).

Although, Johnson teaches the messaging passing medium to include a request and reply descriptor (Col. 13 Ln. 35 – 45) he does not explicitly show RDMA writes.

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Garcia teaches RDMA writes and message Send ("...Send...RDMA Write..." Col. 3 Ln. 62 – 67). It would have been obvious to apply the teaching of Garcia to the system of Johnson. One would have been motivated to make such a modification in order to provide a transaction type that has a 32 bit Immediate data field or 64 bit Virtual address that may follow the VI ID number (Col. 4 Ln. 1 – 6).

As to claim 3, Johnson teaches a send and receive queues (Request Post FIFO 75, Reply Post FIFO 77, 87 Col. 13 Ln. 63 – 67, Col. 14 Ln. 1 – 54, Col. 15 Ln. 1 – 67, Col. 16 Ln. 1 – 67).

As to claim 2, see the rejection of claim 3.

As to claim 4, claim 1 covers claim 4 except for the RDMA write that includes data and a transfer indication to identify a buffer consumed at a destination. Garcia teaches the RDMA write that includes data and a transfer indication to identify a buffer consumed at a destination ("...control information...immediate data..." Col. 3 Ln. 62 – 67, Col. 4 Ln. 1 – 6).

As to claim 5, see the rejection of claim 4.

As to claim 8, claims 1, 3 and 4 covers claim 8 except for a channel adapter. The Johnson reference does not explicitly teach a channel adapter that is couple to the send and receive queues however, this limitation is inherently taught since Johnson teaches a Fibre Channel Network that includes channel adapter for sending and receiving messages to/from an I/O device(s) (Col. 4 Ln. 31 – 55) and send queue and receive queue.

As to claims 9 – 11, see the rejection of claim 1.

As to claims 13 and 20, see the rejection of claim 4.

As to claim 19, claims 1,3 and 4 covers claim 19 except for using RDMA write to communicate data to a pre-registered buffer.

Garcia teaches using RDMA write to communicate data to a pre-registered buffer (VI queue..." Col. 4 Ln. 25 – 33). It would have been obvious to apply the teaching of Garcia to the system of Johnson as modified. One would have been motivated to make such a modification to provide VIA hardware with data that is ready of processing (Col. 4 Ln. 25 – 33).

As to claim 22, see the rejection of claim 19.

Claims 6, 7, 12, 14 – 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,591,310 B1 to Johnson in view of U.S. Pat. No. 6,545,981 B1 to Garcia et al. as applied to claim 1 above, and further in view of U.S. Pat. No. 6,370,605 B1 to Chong Jr.

As to claim 6, Johnson teaches the messaging layers of the host module driver and I/O unit module driver that communicate configuration messages (Config request message 140 Col. 16 Ln. 61 – 67) and communicate data ("...MessageControl field value..." Col. 14 Ln. 55 – 67, "...Address or Context..." Col. 16 Ln. 29 – 40).

Johnson is silent with respect to having different channels for communicating control and configuration messages, and data.

Chong teaches different channels for communicating control and configuration messages, and data (Links 271 – 273, Links 251 and 252 Col. 6 Ln. 36 – 67, Col. 7 Ln.

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66 – 67, Col. 8 Ln. 1 – 37). It would have been obvious to apply the teaching of Chong to the system of Johnson as modified. One would have been motivated to make such a modification to improve scalability (Col. 8 Ln. 19 – 26).

As to claim 7, claim 6 covers claim 7 except for communicating buffer management messages.

Johnson teaches the communication of buffer management messages (“...data...” Col. 6 Ln. 64 – 67, Col. 7 Ln. 1 – 10).

As to claim 12, see the rejection of claims 6 and 7.

As to claim 14, see the rejection of claims 6, 7 and 8.

As to claims 15 and 16, see the rejection of claim 8.

As to claim 17, Johnson as modified is silent with respect to a network Interface Controller.

Garcia teaches a Network Interface Controller (“...NIC end node...” Col. 3 Ln. 36 – 45). It would have been obvious to apply the teaching of Garcia to the system of Johnson as modified. One would have been motivated to make such a modification to improve performance and fault tolerance issues (Col. 3 Ln. 1 – 45).

As to claim 18, see the rejection of claim 14.

As to claim 21, see the rejection of claim 7.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E Anya whose telephone number is (703) 305-3411. The examiner can normally be reached on M-F (8:30-5:30) First Friday off.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7240 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Charles E Anya
Examiner
Art Unit 2126



JOHN HOLLANSBEE
SUPERVISORY PATENT EXAMINER
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